The Excavating Engineer

Vol. 16 JUNE 1922 No. 6

Stripping in the Indiana Coal Fields

Description of the Plant of the Enos Coal Company, Who Operate Two Complete Stripping Outfits

ONE of the largest and most complete coal-stripping operations in the Indiana coal fields is that of the Enos Coal Company, who operate two stripping plants in Pike County, in the southern part of the state. This Company owns approximately 2500 acres, and in addition has 1600 acres under option. The stripping operations are two miles from Spurgeon and eight miles from Oakland City, the shipping point.

How the Plant Is Operated

At the time this article is written the property is being worked on what is known as a two-unit basis. There are two complete stripping and coal-loading plants. Two Bucyrus shovels, a 225-B for stripping and a 35-B for loading coal, are operated at one plant; and two Marion shovels, a Model 300 and a Model 36, are operated at the other.

Stripping Operations

The land over the coal vein is farm land, partly hilly, partly swamp. The overburden is clay and hard rock, about 50% each. Three surface drilling machines go ahead of the stripper, and the overburden is shot with powder and dynamite. The average depth of stripping is 35 feet, the maximum depth running as high as 60 feet in some places.

The stripping was started on an outcrop of the coal vein. The Bucyrus 225-B dug around the outcrop, then backed up to the end of the cut and started the second cut, taking off the overburden down to the coal vein. The second cut was from

The Bucyrus 225-B Biting Into the Clay and Rock Overburden

On the Way to the Tipple

From the shaker screens the coal goes to the picking tables shown here. The loading booms in the foreground then load the coal into the cars below.

From the Coal Vein to the Cars

The 1½-yd. dipper of the Bucyrus 35-B getting a load of coal from the vein which is 5 ft. 10 in. thick at this point. Western 5-yd. cars in the background.

After being conveyed to the top of the tipple, the coal passes down over the shaker screens shown above. The openings are 4 inches wide and 8 inches long.

60 to 85 feet across. The spoil was overcast into the pit after the coal had been taken out.

The stripping shovels are operated 24 hours a day in three 8-hour shifts. The Bucyrus 225-B has stripped as high as 128,000 cubic yards per month.

It is equipped with an 80-ft. boom, 58-ft. dipper handle, and a 6-cu.-yd. dipper. The Marion 300 is equipped with a 90-ft. boom, 54-ft. dipper handle, and 6-cu.yd. dipper.

Loading the Coal

The coal vein averages 5½ to 7 feet thick. After being stripped the coal is cleaned off and drilled by air drills, operated by a Chicago Pneumatic Tool Company compressor. With this outfit it is possible to drill a 6-ft. hole in 75 seconds. The coal is shot with a one-quarter stick of dynamite per hole.

The coal is loaded by a Bucyrus 35-B, equipped with a 30-ft. boom and 1¾-cubic-yard bucket, and a Marion Model 36, equipped with a 28-ft. boom and a 2-cubic-yard bucket. The loading shovels are worked one 8-hour shift. The average loading capacity of the Bucyrus 35-B is 1250 tons per day. The Marion Model 36 has an average daily capacity of 1200 tons.

The Bucyrus 35-B makes a cut 35 feet wide, and has loaded as high as 282 4-yd. cars in an eight-hour shift.

The dinky track is laid on top of the coal vein, and 4-yd. Western Dump cars carry the coal to the tipple. Vulcan, Davenport, and Porter locomotives are used for hauling the trains, which are usually of ten cars each. Five locomotives are in operation. The longest haul so far has been three-fourths of a mile.

Tipple Equipment

The tipple equipment is very complete. The coal is dumped on to a conveying belt which carries it up to the picking and assorting tables at the top of the tipple. After passing over the shaker screens the coal passes to the picking tables. There are two picking tables, each with a capacity of 1750 tons per day, and all coal stripped receives very careful preparation. From the picking table the coal goes directly to the loading booms which deliver the coal into the cars below. As our photographs show, the tipple is equipped to load on three tracks.

The coal is shipped on the Southern Railway, which passes through Oakland City, eight miles

A general view of the tipple. The coal comes from the pit on the track in the background and is carried to the top of the tipple on a conveyor. The tipple is equipped to load on three tracks.

from the mine. Eight miles of standard gauge railway was built by the Enos Coal Company to connect with the Southern Railway. The Company also operate their own standard gauge locomotives to handle cars to and from the tipple. At Oakland City the Enos Coal Company have a private storage yard which will hold 150 cars. The Company also owns two miles of right-of-way to the Big Four Railway.

All coal is weighed at the mine on the Company's standard automatic railway scales. An average of 40,000 tons per month is shipped.

Wm. Trickey is General Superintendent of the plant and Wm. Nichol is Superintendent. J. R. Black, Bernard Turnbloom and S. C. Crawford are operators on the Bucyrus 225-B on the three shifts. R. H. Williams pulls the levers on the Bucyrus 35-B. We are indebted to R. H. Snyder, fireman and oiler on the 225-B, for the information on which this article is based.

Winter Steam Shovel Operation in a Northern Russia Coal Mine at Extremely Low Temperatures

From "Gornoje Djilo" Journal of the Mining Board of The Supreme Council of Public Economy, Russia, January-March, 1921. A description of winter operations in the Cheljabinsk Coal Mines in the Ural with particular reference to preparations found necessary to successful operation in severe winter weather.

As a general rule, excavating work in northern Russia is carried on from April or May until October or November, depending upon the severity of the winter. During the present period of national reconstruction there is a growing demand for heavy excavation work, which, with the small supply of excavating machinery in this country has necessitated continuous operation throughout the whole year. The practicability of this has in the past been doubted by many experts. However, during the forced construction work on the Murman Railroad in

northern Russia and Finland during the war, Bucyrus shovels operated in temperatures as low as —58° F., which is not unlike the winter climate in the mining district of Ural.

Conditions in The Cheljabinsk Mines—Equipment Used

During the past, winter excavation work was carried on in the Cheljabinsk Coal Mines with three steam shovels, a Bucyrus 150-B revolving shovel with a 2½-yd. dipper and a 60-ft. boom and two Model 70 Marion railroad-type shovels with 2½-yd. dippers. The ground was sandy clay. The cut in which the Bucyrus worked was 12 feet in depth. This shovel stripped the overburden from the coal and loaded it in cars on a track laid on the surface at a height of about 33 feet.

At the time this article was written (December 1920) the Bucyrus was working steadily night and day, stripping about 880 to 1100 tons (probably about 1400 to 1700 cubic yards) in 24 hours, uncovering in that time about 780 to 825 (short) tons of coal.

The Marions meanwhile were cutting in, taking four cuts, leaving a pit about 20 feet deep. Their work has been preparatory and the cuts shallow. After reaching this depth they will work more efficiently, digging not less than 1600 cubic yards in 24 hours.

A Class-14 Bucyrus dragline was also engaged on this work. This machine started in on the frozen crust without preliminary blasting, which resulted in the wrecking of the bucket. It is feasible, however, to operate this machine successfully after the crust has been broken with explosives. A ladder type excavator, built by the Arthur Koppel Company was in the same cut. This is a comparatively weak machine and cannot work in the winter.

Method of Blasting the Frozen Surface

Work must be continuous so as to prevent the ground from freezing up. Three shifts, therefore, must be operated. The top crust of the frozen ground is blasted to facilitate handling. Holes are drilled in "checker formation" 2½ feet apart and from 2½ to 3 feet deep, drilled at a 45° angle towards the bank. The holes are charged with soft dynamite, each charge being .112 pounds. This charge breaks up the crust thoroughly.

Drilling will later be done with air drills; at this time, however, twist hand drills were used, one man making 10 holes in a shift.

Protecting Steam and Water Pipes from Freezing

The main problem, however, is to prevent the steam and water pipes from freezing and to protect the workmen. On account of a misunderstanding work was not begun in the mines until the second week in November and no preparation was made for the cold weather. The temperature was —51° F., with a high wind at that time.

At the start, steam quickly condensed in the pipes and during stops there were cases of almost instantaneous freezing of pipes, cylinder heads and valve chests. These parts were immediately covered and the shovel houses made warmer. The water, which was very hard, was delivered in sheet iron tanks. These proved to be useless. The Omsk Railroad then supplied the excavators with tanks of 176 cu. ft. capacity placed in pairs in box cars heated by stoves. The discharge valves were inside. Fourteen such tank cars are in service. They run on special "water tracks" alongside the working track and water is delivered through 2½-inch hose.

The actual operating time ran from 15 per cent earlier in the season to 40 per cent later. This small percentage was due to poor train service, derailments, etc. The Omsk Railroad, however, being the chief consumer of the mines have taken over the transportation, and since conditions have been improved to the extent of cutting down the idle time almost to zero.

Lighting of Pit for Night Work

The proper lighting of the pit and dump is important. Incandescent lamps were not found very satisfactory because of their short life. It was found better to place them on posts rather than on the machines. Acetylene lights are preferable.

Special Clothing Supplied

The supply of warm clothing was found to be most important. Short fur coats and felt boots were not sufficient. Felt-lined trousers and coats and felt caps of the new Red Army style, protecting the back of the head, ears and cheeks, were also supplied. This equipment is warm and light and does not interfere with the movement. Even with this precaution it was found impossible to work a straight eight-hour shift, consequently an extra shovel runner and pit man were added to the regular crew.

Snow Sheds Necessary

The cuts should be protected by snow sheds to prevent drifting. It was found in the beginning that the snow and the newly uncovered earth formed a sticky mass hard to shake from the dipper. Frequent stops were necessary on this account.

Problem at the Dump

Another problem was the difficulty of unloading the cars at the dump. Loading required 25 to 30 minutes while dumping consumed in the neighborhood of an hour. 5 to 6 workmen are used on a car for unloading, which with 12 flat cars to a train meant 50 to 60 men. These men ride the cars between the pit and the dump, a distance of

(Continued on page 182)

Sewer Trenching Through Soft Ground

Revolving Shovel Operation on a 40,000 Cubic Yard Job Near Memphis

THE Moreno Burkham Construction Company, who are well known around Memphis, Tenn., have recently been keeping their outfit busy on a $65,000 sewer contract near that city. This job was for the town of Binghampton, a suburb of Memphis. The sewer runs from this town to the Wolf River, a distance of about seven miles, and the trench varied in width from 34 inches to 60 inches.

About 40,000 cubic yards of excavation was necessary, and the contractors handled this with a Bucyrus 14-B revolving shovel, mounted on caterpillars. The shovel was equipped with a special sewer dipper, and 23-foot dipper sticks. Mr. P. S. Needham, whose name has appeared in our pages before, was at the levers on the Bucyrus, and provided the information for this article.

The material through which the trench was dug was in part good, but in some places caved very easily. The vibration of the shovel operating over the trench made the bank crumble under the machine, and in order to eliminate this as much as possible the trench was dug with the shovel backing up. This, of course, made it necessary to start a new cut with every move of the shovel, but greatly reduced the caving of the trench walls.

The output of the shovel depended on the speed of the pipe-laying crew, as the trench was never dug far in advance of the pipe.

The dirt was overcast to the side of the trench, and then backfilled with teams, using a "Go Devil," operated by two men. Tamping was done in two-foot layers.

The pipe, which is tile, was 36 inches and 31 inches for most of the length of the sewer, the balance being 18 inches. The large pipe was handled with a tripod and block and rope. The 18-inch pipe was let down by two men with a rope without using a tripod or block.

The Bucyrus shovel used on this job is owned by Geo. W. Turner & Company of Memphis, and was recently used by this Company on their 40,000-yard excavation contract for the new auditorium and market house in that city. "Pete" Needham also piloted the Bucyrus 14-B on the auditorium job, with his usual efficiency.

George W. Turner & Company's 14-B Bucyrus working on a sewer job for the Moreno Burkham Construction Company near Memphis. "Pete" Needham, the operator, took a minute off to pose for the photographer. In order to avoid caving in the trench, the shovel dug backing up, starting a new cut with each move.

The Excavating Engineer

A Monthly Publication Devoted to Excavating and Allied Subjects

Subscriptions, payable in advance, $1.00 a year for 12 numbers, 50 cents for six months.

To foreign countries, including postage, $1.00 a year, 6 shillings or 10 francs.

Advertising copy should reach this Office by the 10th of the month before date of issue.

THE EXCAVATING ENGINEER PUBLISHING CO.

Bradlee Van Brunt, Manager and Editor

South Milwaukee, Wisconsin

Printed in the U. S. A.

In this issue we publish a translation of an article which appeared in "Gornoje Djilo," the journal of the Mining Board of The Supreme Council of Public Economy of Russia.

This article should prove of particular interest to those whose excavating operations are conducted under severe winter conditions. The writer, N. Saitzersky, an eminent Russian engineer, describes in a most interesting manner the elaborate preparations that proved to be necessary to make possible successful steam shovel work in the coal mines of the Ural, under temperatures which even in the outset of the winter season registered 58 degrees below zero.

Bucyrus Company Enlarges Its Plants

The Bucyrus Company, South Milwaukee, Wisconsin, have under way at the present time extensive enlargements to both its plants at South Milwaukee, Wisconsin and Evansville, Indiana.

These changes and re-arrangements are planned to take care of their increasing volume of business and to enable them to manufacture more economically. In the South Milwaukee plant, where all the larger machinery is built, a new gray iron foundry is now under construction, 276 feet in length.

The old gray iron foundry, now the south end of the steel foundry, is being converted into a cleaning room with annealing ovens, sand blast rooms and a welding room. A large addition is also being made to the steel foundry moulding floor, and an electric furnace is being installed. Extensive improvements are also being made in the foundry storage yards.

In the plant at Evansville, Indiana, which specializes in the manufacture of small revolving shovels, the machine and erecting shops are being considerably enlarged to enable the company to handle its rapidly increasing business in these machines.

William J. West

William J. West of Virginia, Minn., a prominent figure among the mining men of the Mesabi Range, died in Chicago on April 30 at the age of 56 years. His death was caused by an affliction which first gave him concern about two years ago. Mr. West was manager of mines for the Oliver Iron Mining Co. in the Eastern District and very well known on the range. His passing is a distinct loss to his friends and to the mining fraternity.

· FIELD NOTES ·

Worth Remembering or Jotting Down

By N. G. Near

To convert gallons of water per second into pounds of water per minute, multiply the former by 500.

Or, multiply the gallons of water per second by 1000 and divide by 2.

To convert pounds of water per minute into gallons per second, divide the pounds of water per minute by 1000 and multiply by 2.

Further Extension of Earthwork Tables

In the December 1921 number, we gave Captain Hoar's method of extending earthwork tables to twice the center height for which they were intended.

Captain Hoar now points out how they can be extended to *three* times that center height, by using the same constant as before.

In the case of the Engineer Field Manual, let F be the excess of center height over 50 feet. Then the volume equals $(2F+25)G$, plus the tabular volume for F, plus *twice* the tabular volume for 25.

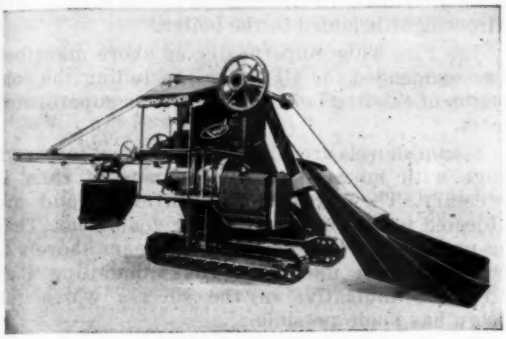
In the case of Allen's Table XXXII, F is the excess of center height over 58 feet, and the volume equals $(2F+29)G$, plus the tabular volume for F, plus *twice* the tabular volume for 29.

In either case G is the same constant as before: i. e., 161.11 for Allen's Table; and 185.2, 277.8 and 370.4, respectively for the tables on pages 287, 288 and 289 of the Engineer Field Manual, U. S. Army, which latter tables were reproduced in our December 1921 number as Tables A, B and C.

DEVICES YOU OUGHT TO KNOW ABOUT

Full-Caterpillar-Type Traction on Concrete Paving Mixers

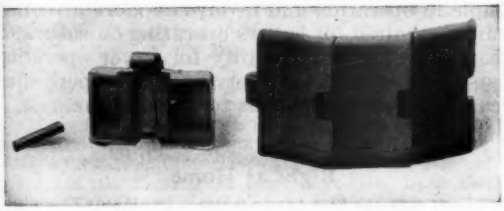
The T. L. Smith Co., Milwaukee, Wis., exhibited at the Road Show in Chicago a newly developed type of Full-Caterpillar-Type Paving Mixer. The new traction was designed by Smith Engineers and is wholly made in the Smith factory. The treads are of electric heat-treated steel castings only 8 inches wide and very closely fitted together. This feature reduces the "jaw crusher" action



The Smith Full-Caterpillar Mixer

noticeable in treads of larger pitch, the interstices of which open up more widely at the bend. The small pitch also gives the mixer an easier movement.

The full-caterpillar-type mixer is more mobile and will follow its work without delay under most adverse circumstances, and it will ride over and steer without planking in wet soft subgrades where the steering wheels of the half-caterpillar-type will mire down or slip. The full-length traction is steered through two all-steel multiple jaw



Detail of the Smith Caterpillar Tread

clutches. Four levers conveniently located at the operating platform control all operations of the mixer. This tread can be furnished on standard type 14-E and 21-E mixers. It does not wholly replace the half-caterpillar and all-wheel types of mixers which are quite satisfactory for city or any work where travel is over harder surfaces.

A feature of these paving mixers is the new cross-dump bucket. The doors of this bucket open crosswise instead of lengthwise. This design discharges more quickly, and the concrete can be spread from the bucket as it travels along the boom.

For more detailed information regarding this new paver write the T. L. Smith Co., Milwaukee, Wis., using one of the blank postals inclosed in this issue.

Superheated Steam in Steam Shovels

Outside of those intimately connected with the industry, very few people realize the problems which are involved in the operation of steam shovels.

The very nature of the work performed by steam shovels and dragline excavators involves their operation at points far away from the supply basis of men, material, water and fuel. The operation of the shovel, therefore, is dependent upon the available supply of fuel and water which are essential to the uninterrupted performance of the machinery.

Under the most favorable conditions, fuel is not only difficult to deliver to the point where the boilers operate, but it is also a costly necessity even at the nearest railway siding. A very small percentage of this coal saved, represents a saving in actual dollars that cannot be overlooked. Of all the means available to make steam shovels more effective in their work, more continuous in their operation, to reduce both fuel and water consumption, and thereby reduce the cost of steam shovel operation, the steam superheater is of the greatest importance.

The advantages of superheated steam in steam shovels resolve themselves into one main effect, namely, the ability of the equipment to handle more material at a lower cost than is possible when saturated steam is used in the engine cylinders. It is, therefore, of interest to study how the application of steam superheaters to steam shovels accomplishes these results.

A typical example of the use of superheated steam in service which is more or less intermittent, as is the case in steam shovels, is that of its use in switching locomotives. In this class of service over 35% of the weight of the steam admitted to the cylinders is lost in condensation. This means that for every 100 lbs. of steam delivered to the cylinders only 65 lbs. are available in performing work. This condensation loss can be overcome by the use of highly superheated steam which means an average reduction of 35% in the amount of water, and of at least 25% in the amount of coal used for a given amount of work.

The practical advantages which result from these properties of superheated steam are in general as follows:

An increase in boiler capacity,

A saving in fuel,

A reduction in the amount of water used by the boiler.

The condensation in the cylinders of steam shovels is ordinarily high on account of the intermittent nature of the work. Superheated steam effects a great saving by eliminating this loss.

As a direct result in the saving of water evaporated by the boiler, a corresponding saving in fuel consumed under the boilers results from superheating.

Another direct result of the reduction in steam consumption is the fact that the capacity of the boiler is increased. Because the demand on the boiler for steam is reduced, a boiler steam reserve is built up, which is available for increased power demands upon the engine cylinders. In other words, for the same boiler capacity a smaller boiler with a superheater will do the work of a larger boiler without a superheater.

There is also a reduction in the amount of water used by the boiler. This reduction in feed water is due, as we have noted, to the decreased amount of steam consumed by the engine cylinders. It results in a further saving in the cost of operating the steam shovel, particularly so where water is scarce and difficult to get to the job. In poor water districts there is a distinct advantage in operation in favor of the superheated shovel, because of the evaporation of less water due to superheating less boiler maintenance costs result.

The apparatus used to superheat steam is a steam superheater. The installation of the Fire Tube Superheater involves the replacement of some of the boiler flues with those of larger diameter in order to receive the superheater units. In the case of vertical boilers, the top and bottom tube sheet are renewed to conform with the altered tube arrangement. In the case of horizontal boilers or boilers of the locomotive type, the tube sheet at the fire box end and the front tube sheet are renewed. In either case the change is simple.

In operation, steam from the boiler passes to the saturated steam chamber in the header. This chamber serves the purpose of distributing the steam uniformly through the superheater units or elements. These units, being located in the boiler flues as before noted, are in direct contact with the gasses of combustion at the same time that these gasses pass the boiler heating surface. As the steam passes through the units its temperature is raised and it becomes superheated. In this condition it passes from the units to the superheated chamber in the header, whence it passes to the engine cylinders. The control of steam passing from the boiler to the superheater and thence to the engine cylinders is effected by the usual throttle located in the superheated steam line.

The location of the superheater is of interest not only because its heating surface is in contact with advantageous gas temperature but also because its position does not take up valuable space in the boiler, or space which could be used for any other purpose. The design, therefore, has been worked out with a full realization of the fact that space is at a premium. With this design, of course, no greater platform space is necessary nor the exterior of the boiler changed in any way so far as increasing its dimensions is concerned. Very little weight is added to the boiler.

The Fire Tube Superheater as above described is recommended for all boilers, including the conversion of existing boiler to operate on superheated steam.

Steam shovels are, of course, designed for rough usage with no more engine refinement than is necessary. They operate intermittently and are subjected to all kinds of weather conditions. That the use of superheated steam in steam shovels is successful even under the rough handling they receive is indicative of the success which the design has made possible.

The maintenance and operating costs of steam shovels operating on superheated steam are as low as with saturated steam provided arrangements are made for internal lubrication of the working parts and the necessary alterations made to valves and cut-offs. The lubrication should be effected by mechanical type lubricators which deliver mineral oil into the main steam pipe and cylinders using oil of a quality which retains its lubricating properties up to 700 degs. Fahr. total temperature.

The Superheater Co., 17 E. 42nd St., New York City, will furnish full information on the application of superheaters to any type of steam shovel. Elesco Superheaters are easy to maintain and simple in operation and involve no more attention than is required for boilers operating on saturated steam. There is a possibility for lower operating costs in steam shovel service and superheated steam is a practical means to reduce them.

Right at Home

"Wot was the last card Oi dealt ye, Haley?"

"A spade."

"Oi knew it; I saw ye spit on yer hands before ye picked it up." —*Exchange.*

A Business Offer

The medical examiner looked haughtily at the man who wanted to prepare to ride the goat. Then he said:

"I'll examine you carefully, sir, for five dollars."

"All right," said the applicant, "and if you find it, I'll split fifty-fifty with you." —*Ex.*

SHOTS FROM THE FIRING LINE

Eastern District

BY E. B. WILLIAMS, NEW YORK

New York City Notes

The Murray Construction Company of Knoxville, Tennessee, who were recently awarded a half-million dollar paving contract by the city of Greensboro, North Carolina, have already progressed rapidly with the grading of the streets. Mr. H. E. Murphy is in charge of the work which embraces the paving of eleven miles of streets. Mr. Murphy was formerly with the White Construction Company of Chicago and was in charge of their fifty-five-mile project on the Arkansas and Louisiana Highway. Mr. Lew Rubelson is assistant to Mr. Murphy. Mr. J. R. Jordan is in charge of the machinery equipment.

Mr. H. B. Carson has recently completed the erecting and test of a new Model 4-22 Keystone Excavator which the Murray Company is using to grade the streets. W. R. Coatney will be engineer on the Keystone and E. M. Jarrell will keep the fires hot.

Ed. Pruett is operating an Erie Type-A on street grading work for the Murray Company at Greensboro, North Carolina. C. C. Bryon is firing.

There were a large number of projects let at Raleigh, North Carolina, by the State Highway Commission on the 25th of May. Bids were received on work in the following counties: Cumberland, Cabarrus, Richmond, Rowan, Forsyth, Jackson, Avery, Camden, Brunswick, Yancey, Cherokee, Northhampton, Columbus, Onslow, Alamance, Hoke and Iredell.

W. R. Hart is operating an Erie B shovel at Raleigh, North Carolina, for Jamison Brothers. The shovel is being used to excavate basement for the new hotel.

Mr. C. W. Lacy, Wilmington, North Carolina, has an unusual project in the swamp section of the Eastern North Carolina highway work. The original engineer's estimate called for 75,000 cubic yards of borrow, but already about 115,000 yards of material have been put in, and the swamp continues to devour the fill. The borrow is being loaded in 4-yard dump cars with a Marion Model 28 shovel, and hauled on a narrow gauge railroad for a distance of two miles, in nine-car train loads. Mr. Harris is superintendent of this work for Mr. Lacy and Joe Eden is operating the Model 28.

Luther Hart is operating an Erie B shovel for R. G. Lassiter, grading city streets at High Point, North Carolina. Joe Hale is keeping the fires hot for Hart.

The Asheville Construction Company is making rapid progress on the road from Old Fort to Asheville, North Carolina, with their two 14-B Bucyrus shovels.

E. C. Tucker is operating an 18-B Bucyrus at Madison, North Carolina, for the Pomona Terra Cotta Company. The shovel is digging hard yellow shale, which material is shipped from Madison to Pomona, North Carolina, to be used in the manufacture of terra cotta pipe.

Armstrong & Trowbridge are making splendid progress on their highway job in Sullivan County, New York, with their 14-B Bucyrus shovel.

Mr. G. E. Lawtin, Superintendent, Lane Construction Corporation, of Mendon, Connecticut, is handling their big road job at Cairo, New York. This is exceptionally heavy work, comprising several miles of concrete road. The excavation on this work is handled by a Bucyrus 14-B.

Winston & Company are breaking all material handling records on the Scituate Dam work at Hope, Rhode Island. This work includes a reservoir and dykes for Providence Board of Water Supply. Some two million yards of dirt is being handled by three Bucyrus 30-B shovels.

The work of the Power Dam at Whitingham, Vermont, was recently awarded to W. F. Carey, 60 Wall Street, New York. One 70-C Bucyrus and one 76 Marion will handle the excavation.

Illinois

An application to construct and operate a railroad line in Jefferson County out of Mount Vernon, Ill., for transportation of freight and passengers was filed with the Illinois Commerce Commission April 14. The route of the line was described as from Mount Vernon to section 15, township 3 south, range 1 east, thence westerly 3½ miles to connect with the Chicago, Burlington & Quincy R. R. The company would be incorporated for $1,000,000.

Iowa

The New York Central has awarded a contract to the Walsh Construction Company, Davenport, Iowa, for tunnel improvement work near Garrison, N. Y., which will consist of the excavation of an open cut in rock for two tracks to the east of the existing tracks and on line for a permanent four-track development. The estimated cost is about $500,000.

Kansas

The Eldorado & Santa Fe (A. T. & S. F.) has applied to the Interstate Commerce Commission for a certificate authorizing the construction of three lines in Kansas, one of 3 miles in Chase County, another of 38 miles in Chase and Butler Counties and another of 2½ miles in Butler County. The first and second lines with the existing line of the Atchison, Topeka & Santa Fe will furnish a direct route from Ellinor to Eldorado, reducing the haul for through trains south and west by 13.65 miles, and the third line, together with 1½ miles of the second line, will furnish a belt line around the east side of the city of Eldorado.

Missouri

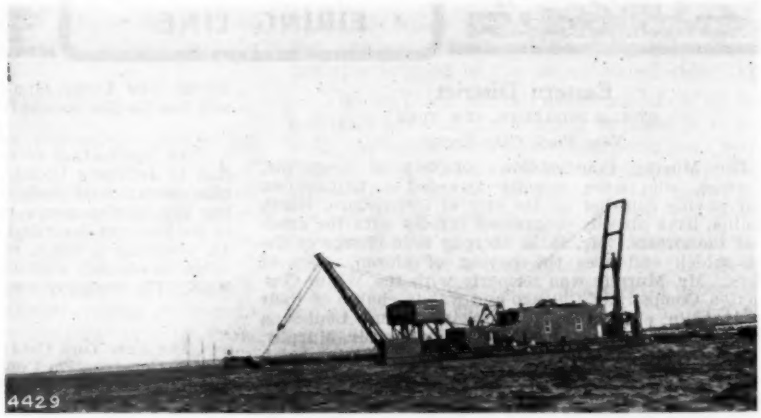
L. D. Oler writes us that he is now pulling the levers on a floating dredge near Puxico, and that if he likes it he will let the draglines alone for a while. Mr. Oler's present address is Puxico, Missouri.

North Carolina

The following were low bidders at the road letting held at Raleigh on April 25: First District, Project 187, Pitt.—Bethel to Edgecombe County line, 4.43 miles gravel, roadway by J. P. Dicus at $16,078, structures by Powers & Thompson, at $11,056.25; Third District, Project 326, Columbus.—Lake Waccamaw to Freeman, 13.61 miles gravel, roadway by J. T. Plott, at $99,702.84, structures by J. A. Frees, at $93,965.80; Fourth District, Project 446, Lee.—Sanford-Carthage road, 5.05 miles hard surface, roadway by Atlantic Bitulithic Co., $148,321.40, structures by C. A. Mann at $8,869.64; Fifth District, Project 503, Alamance.—Bridge over Haw River, by Atlantic Bridge Company, $54,045.80; Sixth District, Project 600, Alexander.—Taylorsville to Iredell County line, 9.3 miles gravel, by C. B. Hester at $19,339.80; Projects 629-647, Catawba-Lincoln.—Newton-Lincolnton road, 14.62 miles hard surface, roadway by A. L. Harris, Dillsboro, at $432,536.60, bridges by R. M. Thurmond at $41,523.68; Ninth District, Project 990, Transylvania.—Road between Brevard and Rossman, 8.87 miles waterbound macadam, roadway by Sam L. Davis Construction Company, at $93,662.70, bridges by R. C. Stevens, $41,786.80.

Notes from the Pacific Coast

The directors of Snake River Drainage District No. 2054 recently let a dredging contract to the Ajax Dredging Company of San Francisco for $138,000.00 to construct the deep drainage system for the district as outlined by the district engineer, Martin C. Polk, Live Oak, Calif., Preliminary operations are to begin at once.



Reclaiming land along the waterfront at Tsurumi, near Yokohama, Japan. The Tokio Bay Reclamation Company are doing this job with a Bucyrus 20" hydraulic dredge. At the time this photograph was taken the dredge was depositing material inside the breakwater, pumping the sand, silt and water through a 3,700-foot pipe line with a 5-foot elevation.

Grading a road down an 8% grade near Maybelle, Texas, in conjunction with the work under way on the Big Wichita Irrigation Project for the Wichita County Water Improvement District. W. E. Callahan is the contractor and the work is being done with a Bucyrus 30-B gasoline shovel.

A 70-Ton Bucyrus shovel loading trap rock at the

This shovel, operated by the Kelly Island Lime and Transport Company in their quarry at Marblehead, Ohio, is the first railroad-type shovel to be equipped with caterpillar traction. The caterpillars were designed and built by the Bucyrus Company at South Milwaukee, Wis.

the Delaware River Rock and Construction Company

Loading rock at the quarry of the Atlas Portland Cement Company, Leeds, Alabama, with a 30-B Bucyrus shovel.

Plans have been made by Engineer J. B. Thompson, Chico, and petitions are now being signed by property owners, to be presented to the State Water Commission on May 1st, for the formation of an Irrigation District in the vicinity of Chico, comprising from 15,000 to 20,000 acres of land in Butte and Tehama Counties.

Riley & Peterson, 2245 National Ave., San Diego, who bid $46,690 were low bidders for the construction of the Mussey Grade work, involving 500 cu. yds. embankment, unclassified 3262 cu. yds. Class "A" concrete pavement, 5" 2455 lbs. reinforcing steel.

Surveys and cost estimates are now being prepared by Engineer W. W. Stanton, Jr., Gridley, for drainage works for Reclamation District No. 2056, work involving the moving of approximately 200,000 cu. yds. of earth. Plans will probably be completed in May, 1922, bids to be called for the work shortly after the approval of the project by State Reclamation Board.

Plans are being made by the Engineering Department of the Union Pacific Railway Co., Los Angeles, for the construction of terminals and docks at East San Pedro, Los Angeles Harbor, to consist of 4 piers, each 600 ft. long by 250 ft. wide, these piers to extend into the channel. The slips between the piers will be dredged to 30 ft. at mean low tide. This terminal will be equipped with modern freight handling machinery. Total estimated cost $2,000,000.00.

The following Board of Directors for the Petaluma Municipal Water District have been elected: Messrs. Vonsen, Gassage, Vogersen, Murphy and Hopkins were elected, and Mr. White was appointed by the Mayor. Works of the District will comprise: Earth fill dam, 1400 ft. long on crest, 80 ft. high, to contain approximately 310,000 cu. yds. of earth; diversion dams; 3 dams on surge of creeks, concrete lined canals, several miles in length; sand filter plant, 1,000,000 gals. daily capacity; pipe line, 26,000 ft. long, 16-ft. diameter to be used as supply line. Howe & Peters, 24 California St., San Francisco, are engineers.

Imperial Irrigation District is making plans for the consolidation of all the water companies in Imperial Valley under the District. It is likely that a bond issue of $7,500,000.00 will be voted to purchase the various water companies, which will take about $5,000,000.00 leaving $2,500,000.00 for proposed drainage work throughout the valley. Meetings were held during April at various points throughout the valley, at which drainage experts explained the proposed plans and new work, and the benefits to be derived therefrom. It is possible that a bond election will be held later in the year.

Plans have been made by Chief Engineer R. G. Clifford, of the Natomas Co. of California, Forum Bldg., Sacramento, and permit will probably be granted shortly for an irrigation system in Sutter County taking 82.5 sq. ft. from the Feather River to irrigate 6610 acres of land. Two pumping plants will be required. Upper Diversion Canal 7.1 miles long, 15 ft. wide top, 5 ft. wide bottom. Lower Diversion Canal 3.3 miles long, 7.8 ft. wide at top and 3 ft. wide at bottom. Estimated cost is $216,000. This system will be installed as soon as the demand for farming land warrants the expenditure, possibly the latter part of this year.

Of great importance is the news of resumption of operations at Ray and Hayden, Arizona. Manager Boyds is reported to have wired for the return of all absent supervisory employes and to be hiring all miners who can be had. The camp employs mainly Mexican and Spanish miners. Daily train service is to be resumed on the Arizona Eastern Railway from Phoenix and a large force of operatives will be needed for the ore trains between Ray and Hayden. It is understood that the opening of the mines will mean immediate employment of at least 1000 men. A contract has been signed in Phoenix with the General Engineering Co., of Salt Lake City, for erection of a 100-ton gold-silver mill on the Starge property, near Morenci, with stipulation that work will be started this month.

Fred Stone has recently been operating a Marion 40 on the Skagit tunnel, which is part of the City Power Plant system being built by the City of Seattle, Washington. This tunnel will be 22 feet wide at the spring line, 17 feet wide at the bottom and 19 feet high. It will be over 11,000 feet long, and constructed from both ends and also from the center. The work is being carried on by R. C. Storrie & Co., general contractors.

The Directors of the Imperial Irrigation District, Calexico, recently conferred in Los Angeles with President Sproule of the Southern Pacific R. R. Co. regarding the building of a railroad on the Siaz Levee. Negotiations have been going on for some time and the Irrigation District Colorado River Land Company and Southern Pacific have been approached to jointly bear the expense of raising and strengthening the Siaz as an additional means of protection against flood dangers.

While the construction of the new Siaz Levee by the Colorado River Land Company and the installation of the Pescadero cut and weir have assured the Valley of the highest degree of safety that the Valley has ever had, it is being urged in some quarters that the building of a track on the levee will be the final step necessary to insure the District against any conceivable flood and will take care of all protection needs until Boulder Dam is installed.

Engineers do not expect the Pescadero cut to carry the entire discharge of a high river this season. They state that one big flood will be necessary to scour out the new channel. In case of a high crest this year, some water probably will reach the Siaz Levee, and it is for the purpose of rock-reveting this dyke that the railroad is being urged.

The Utah State Highway Commission has prepared a road program for 1922 which contemplates an expenditure of between $4,000,000 and $4,250,000 and is to provide for the construction of 187 miles of improved highway out of a total for the state of 3,220 miles. The government projects have been kept in a forward state and is much greater than last year.

The Western States Gas and Electric Company have started operations on the construction of the large hydro-electric power project and are using two 14-B Bucyrus shovels in the vicinity of Placerville. One 30-B Bucyrus shovel will soon be started at Placerville, and two more will handle the excavation for the dam near Twin Lakes.

Plans are being prepared by the Marysville River Farms Co., Col. Scott Hendricks, 1039 Mills Bldg., San Francisco, President, for the irrigation of about 1,200 acres of land in the vicinity of Marysville, Yuba County. Land is now being cleared for cultivation.

Contract has been awarded to Morrison & Knudson, Boise, Idaho, for regrading work, preparatory to ballasting 30 miles of the O. W. R. & N. Railway from Huntington, Idaho, westerly.

Plans are being made by Engineers Polk & Robinson, Chico, for excavation work for Reclamation District No. 777, at Live Oak, Sutter County. Work will involve about 50,000 cu. yds. excavating new ditches, and 150,000 yds. enlarging old canals and ditches.

Petitions are now being signed by property owners in the vicinity of Auburn, Placer County, and will be presented shortly to the State Engineer with reference to the formation of the proposed Mt. Pleasant-Lincoln Irrigation District in Placer County. Although no engineering data have as yet been prepared a preliminary report as to the feasability of the project has been prepared by Engineers Olmsted & Gillehen, Hollingsworth Bldg., Los Angeles. The following structures will be required: Dam 150 ft. high, 300 ft. long on crest, concrete construction, type not yet decided, will be located on the Bear River and will store 90,000 ac. ft.; Ditch, 2 miles of main ditch; Distributing system, ditches, laterals, pipe lines, flumes, etc. Estimated cost $1,500,000.00 or about $50.00 per acre for 30,000 acres.

Mr. John A. Livingston is President of the Placer County Land Co., Auburn, Calif., and is a trustee of the proposed district.

The Lee Moor Contracting Company is operating a 30-B Bucyrus gasoline dragline at Whitewater, California.

Contract has been awarded to Twohy Bros., San Francisco, at approximately $275,000.00 for the construction of a standard gauge railroad from Magma to Superior, Arizona, for the Magma Arizona Railroad of Superior, Arizona, work involving the grading, erection of track structures, and laying of track for approximately 30 miles of main line with necessary yard tracks, sidings and spurs, all in Pinal County, Arizona, work involving the following approximate quantities: 315,000 cu. yds. excavation; 850,000 F. B. M. timber trestles and culverts; 7,000 lin. ft. of pile driving; 5,200 lin. ft. pipe culverts; 33 miles track laying and surfacing; 25 switches to be placed. E. G. Dentzer, Superior, Arizona, is Chief Engineer of the Magma Arizona.

Contract has been awarded to Hauser Construction Co., Henry Bldg., Portland, for 15,000 yds. grading and building a siding involving 400 yds. concrete, for the S. P. R. R., at Siskiyou, Siskiyou County, Calif.

Plans are being made by the Buckeye Irrigation Company, Mr. C. A. Narramore, Secretary-Treasurer, Phoenix, Arizona, for the construction of a large irrigation project, including a drainage system and the construction of a diversion dam across the Gila River, total cost approximately $800,000.00. Plans and specifications of this work will be completed about July 1st.

The Bureau of Public Roads opened bids for Trail-Prospect National Forest Road Project yesterday, and Hill Construction Company, Portland, was awarded Section B, and Geo. Brown & Sons, Section A.

Following awards were made by the State Highway Commission, April 14th and 15th: *Baker County*, Baker-Nelson Section, Units 1 and 2, Security Construction Company; *Benton and Lincoln Counties*, Blodgett-Toledo Section, Unit No. 1, Washburn & Hall, Unit No. 2, A. Giebisch; *Deschutes County*, Cline Falls to Sisters Section, Marsh & Bowers; *Douglas County*, Canyonville-Galesville, Moceri & Co.; *Gilliam County*, Arlington-Shutler Section, Security Construction Company; *Lane County*, Power Plant and Shell Section, A. F. Saar, McVeigh Overcrossings, A. C. Mathews, Eugene; *Umatilla County*, Deadman's Pass-Kamela, Bids rejected; *Yamhill County*, McMinnville-Amity Section, Cochran Construction Company; *Baker County*, Old Oregon Trail Bridges, J. J. Burke, Salt Lake; *Deschutes County*, Two culverts and two spans near Sisters, F. H. May, Bend, Oregon; *Linn County*, Albany-Tangent Section, two concrete spans, Tobin & Pierce; *Polk County*, McMinnville, 1 bridge, Marshall & Bonham, Portland; *Yamhill County*, Deer Creek, 1 bridge, LeDoux & LeDoux, City Limits of Amity, 1 bridge, Tobin & Pierce; *Josephine County*, Pacific Highway, paving, Albany-Tangent Section, A. D. Kern; *Linn County*, Pacific Highway, Albany-Tangent Section, paving, U. R. Dennis Co.; *Umatilla County*, Oregon-Washington Highway, surfacing, General Construction Co., Spokane, Pilot Rock-Unison Canyon Section, referred to engineer with power; *Wasco County*, Dalles-California Highway, 15.2 miles grading, 125,000 yds. excavation, Clifton, Applegate & Toole; *Umatilla County*, Market Road, General Construction Company, Spokane, Pilot Rock Section, referred to county for action.

The following awards were made by the State Highway Commission of Olympia on bids opened April 18th; *Sunset Highway*, Sunnyslope-E. Cashmere, 4.18 miles, McHugh Construction Co., Seattle; *Olympia Highway*, McCleary-Thurston County Line, 3.71 miles, Independent Asphalt Paving Co., Seattle; *North Bank Highway*, Ellsworth-Camas, 1.40 miles, Geo. T. Warren, Seattle; *National Park Highway*, Alder-Elbe, 4.92 miles, Schacht Construction Co., Yakima; *State Road No. 22*, From Davenport north in Lincoln County, 5 miles, Clifton, Applegate & Toole, Spokane.

Bids were opened May 6th at Portland for two Forest Road Projects. Awards were made as follows: Forks-Bogachiel Section, Olympic Highway, Callam County, C. W. Miley, Everett; Brush Creek-Messels Creek Section, Roosevelt Highway, Curry County, Oregon, Grant Smith & Co.

Bids will be opened May 15th by the County Commissioners at Lewiston, Idaho, for improvement of Federal Aid Project No. 58, North & South Highway in Nezperz County.

Bids were opened by State Highway Commission of Oregon May 9th and 10th. Following awards have been made up to this writing: Mohler-Clatsop County Line Section of Roosevelt Highway, Tillamook County, to Tillamook County Court; Wasco-Biggs Section of Sherman Highway in Sherman County, to Pat Lonergan, Pendleton; Halsey-Harrisburg Section of Pacific Highway in Linn County, to Skandia Shipbuilding Company, Marshfield.

The Wasco County Commissioners awarded contract to the United Contract Company of Portland for grading Mill Creek Market Road.

E. H. Scott is handling the levers on Coos Bay Lumber Company's new Bucyrus 30-B shovel. This machine has just been installed.

St. Louis Items

BY A. B. KOENIG

J. J. McCaughey Co. sublet a part of their Burlington R. R. work near Sorento, Ill., to Ira J. Printy and T. J. Morris.

Walsh Construction Co., Davenport, Iowa, were awarded several pretty good-sized jobs by the Big Four R. R. in Indiana. Are subletting the team work. Doing the steam shovel work with their own outfits.

Shell Huckins is now in charge of Yale & Reagan's steam shovel work on the Frisco R. R. west of the city.

Reid & Lowe, Birmingham, Ala., are low bidders on the new Vicksburg, Miss., terminals. Their contract includes tracklaying and trestle work. Completed their job of putting tracks on concrete barges here last week.

Grant Smith of Grant Smith & Co. came in from St. Paul to take a look at their Frisco contracts. Everything going nicely.

The largest contract ever awarded in Kansas for hard surface roads was let on April 29th in Girard, Crawford County, according to a statement by M. W. Watson, state highway engineer. The contract totals $721,957.70. The contract provides for the paving of twenty-six and one-half miles of the Jefferson Highway north through Crawford County. Four construction companies, the lowest among fifteen bidders, received contracts for sections of the road. The largest previous road contract in Kansas, according to Watson, was for $615,000 let in Wichita several months ago.

W. H. Dennison Construction Co. have finished their levee work at Newport, Ark. Have been on this job almost two years. This firm is moving several concrete outfits on the White River Branch of the Missouri Pacific R. R. Going to replace ten wooden trestles with concrete structures and earth embankments. Roach & Stansell of Memphis, Tenn., are going to do the steam shovel work on this job.

Felix Kersting, Mt. Vernon, Mo., has between 12,000 and 20,000 yards of road grading in Cooper County, Mo., and about 25,000 yards in Miller County, Mo., to sublet.

Walsh Construction Co., Davenport, Iowa, were awarded contract for raising Frisco grade and tracks from levee at Puxico, Mo.

Alexander & Baity Construction Co., of Springfield, Mo., recently awarded the contract for building twenty-

one miles of new state highway from the Howell County line to Gainesville, Mo., have announced that they are prepared to start on the work and are gathering material for the job.

R. E. Oliver says he has quit contracting and in future will devote his time with M. A. White and the Continental Rock Asphalt Co. at Big Cliff, Ky.

Mulvill Bros., General Contractors, with offices in the Times Bldg., Alton, Ill., have been awarded contract for grading and track laying for 18 miles of storage tracks for the Union Tank Car Co. of New York at South Wood River, Ill. The cost of this improvement is estimated at $500,000. Mulvill Bros. have sublet a part of the grading for these yards to L. S. Cooper & Sons, who have a 30-team outfit at work, and J. J. McInerney, who has 20 teams on the job. The tracklaying, ballasting and surfacing will be done by the Industrial Track Construction Co. of St. Louis.

Mulvill Bros. had an outfit on this job and were at work within 24 hours after being awarded same.

Joe Cordeal is back on the job with the Western Wheeled Scraper Co. at 1442 N. Broadway here, and will be pleased to hear from and see his friends when in this neighborhood.

The Massman Construction Company was awarded contract for revetment work by the Missouri Pacific R. R. along their line in Western Missouri.

J. C. Scott was awarded 10 miles of State road work near Versailles, Mo.

Southern States Notes

BY C. N. BALLENTINE AND E. J. WILKIE

Moore Bros. & Carr, Columbia, Tenn., report satisfactory progress on their road work near Hohenwald, Tenn.

Luby Rhodes and Bill Woods are running Vulcan shovels for the J. J. Gray Mining Company at Iron City, Tenn. Joe Richards and Wiley Swinney are craning for them.

R. L. Peters of Knoxville, Tennessee, was awarded eight miles of bituminous macadam road work in Campbell County, Tenn.

Excessive and long-continued rains over the entire country have produced stages in the lower Mississippi River higher than any previously on record. New high water records were established at Greenville, Natchez, and Vicksburg, Miss.

The Alabama Construction Company, Montgomery, Alabama, was low bidder on 8.23 miles of gravel road work in Monroe County.

Bids were opened on May 2 on 12 miles of work in Coosa, the lowest being that of Woolsey Finnell, better known as Colonel Finnell.

Owens & Bass of Jackson, Miss., were successful in landing seven miles of road work near Yazoo City, Miss.

L. M. Thompson and A. L. Eaves are running a Vulcan shovel for the McNamee Kaolin Company at Bath, S. C.

Ed. Israel, the well-known shovel runner, visited us recently. Ed has been handling a 14-B Bucyrus for the Broad River Lumber Company near Stack House, N. C.

The Hammond Development Company, Pampano, Florida, expect to make extensive improvements on a large section of their land near Pompano.

Mr. A. M. Shaw, Consulting Eingineer, has moved his office from 617 Common Street to 1412 Hibernia Bank Bldg., New Orleans, Louisiana.

Vilbig Bros., Dallas, Texas, have their 14-B Bucyrus shovel in Houston, Texas, where it is excavating for the foundation of the new theatre building at that place.

Mr. W. L. Tompkins is operating Vilbig Brothers' shovel on the Houston work. Mr. Tompkins' permanent address is 4318 Tuttle Ave., Dallas, Texas.

Board of Commissioners, Broad Slough Drainage District, Greenville, Miss., has thirteen miles of drainage canals to let in the near future. The total excavation amounts to 230,000 yards, and in addition there will be about ninety acres clearing.

Fayette & Lamar County Drainage District No. 1, W. M. Suddeth, President Board of Commissioners, will construct forty-two mile main canal, containing 2,355,000 yards. Bids for this work will be received in the near future. Mr. Guy A. Hart, U. S. Drainage Engineer, Montgomery, Ala.

Drainage District No. 11 of Madison County, Jackson, Tenn., will receive bids during the present month for drainage canals and laterals in Hardeman, Madison and Chester Counties. The total excavation amounts to a little over 62,000 yards.

S. A. Lacy of Anniston, Ala., was in Birmingham recently while en route to his home from the work in Louisiana, where he is using a Class-9½ caterpillar dragline.

The permanent address of Mr. M. G. Blue, the well-known cranesman of this section, is 3500 34th Avenue, Birmingham, Alabama.

J. D. Morris, steam shovel engineer, is now operating the 150-B shovel owned by the I. O. Drewry Contracting Company. Mr. Morris' present address is care of this company at Carbon Hill, Alabama.

Mr. John Bennett, steam shovel engineer, has been overhauling the 45-C Atlantic shovel at Ellenton, Florida, owned by the Atlantic Refining Company and used in their fuller's earth pits at that place.

Tennessee

The Beech Fork Timber Co., 8th and Horne Sts., Cincinnati, Ohio, received bids April 17 to 19 on construction of six miles of standard gauge from a connection with the Tennessee Railroad up Beech Fork of New River, including 90,000 cu. yds. excavation, 2,000 cu. yds. stone masonry and 60 cu. yds. bridge masonry, besides six miles tracklaying and ballasting. Shields Engineering Co., (Beech Fork Timber Co.), Hazard, Ky., can give particulars.

The Chattanooga-Crossville Project is undertaking a survey for the construction of a railroad to extend from Chattanooga to Crossville, a distance of about 35 miles, at which latter point a connection will be made with the Tennessee Central. It is expected that the construction of this line will be completed by the end of the coming summer and that the road will traverse the largest undeveloped coal fields in that state. C. E. James of Chattanooga is in charge.

Texas

Some important changes and improvements have been made at the Toronto rock quarry of the Southern Pacific Lines, near Alpine, Texas. These include the installation of an Allis-Chalmers No. 9½ Crusher in addition to the Austin 7½ which has been in use for one year. A 70-ton Bucyrus steam shovel and eighteen 4-yard Western dumps and 18-ton Davenport locomotive have also been added, with a view of greater output of crushed rock, which is to be used for ballast. W. S. Dixon is operating the shovel, J. T. Holdner is craning, John Moore, fireman and W. L. Gwyn, watchman.

Virginia

Gooch-Williams Company, contractors, of Norfolk, have been awarded work of constructing the Bayview and Norwood schools in that city in connection with the building program being put on by the city of Norfolk, according to information which has just been received by the Builders' Exchange here. Other details of the work have not been made public.

Canada

Toronto and Vicinity

BY C. F. ENGLAND, TORONTO

The Dominion Construction Co., Ltd., with Canadian headquarters in Toronto and American headquarters at Niles, Mich., has taken a contract from the Michigan Central Railroad for the construction of the greater part of its large freight terminal and classification yard at Niles, Mich. The current authorization of $500,000.00 has been made principally to cover 320,000 cubic yards of excavating, the construction of the eastbound hump, and eight 100-car receiving tracks; 400,000 cubic yards of embankment and twelve 100-car tracks. This work will complete a 25-track classification yard together with a permanent connection with the south end division tracks. It is expected that the work will not be completed until well into 1923.

Merlo, Merlo & Ray, Limited, Walkerville, Ontario, have purchased from the city of Montreal their large asphalt paving plant mounted on cars with a capacity of 2000 square yards of paving per day.

Geo. Higginson & Son, Coldwater, Ontario, report being very busy at their stone quarries. They recently received a large order for crushed stone from the Toronto Transportation Commission and are engaged on an order for 300 cars of crushed limestone for Victoria County, Ontario.

The Premier Construction Company, Walkerville, Ontario, is a new contracting company which has been successful in securing some provincial highway work. The President is Mr. J. Holland, and Secretary and Manager is Mr. W. Carmichael.

County Superintendent Talbot of Middlesex County, Ontario, reports that he has found the two-horse grader to be the most useful tool for road maintenance work, and in the past few years has installed over 100 of these machines for patrol work.

W. H. Knister, County Road Superintendent of Essex County, has installed a Bucyrus one-yard steam shovel in the County's gravel pit.

Mr. J. C. Gardiner, Niagara Falls, Ontario, has been appointed Road Superintendent for Welland County, Ontario.

Mr. Geo. Hogarth, Chief Engineer, Ontario Department of Highways, has been elected President of the Association of Ontario Land Surveyors.

The Hon. F. C. Biggs, Minister of Public Works for Ontario, has introduced a bill to the legislature to raise $25,000,000 loan secured on the motor vehicle taxes of the province. If the bill becomes a law he suggests spending the entire sum in a three-year program to re-condition the 1800 miles of provincial highway.

The Canadian Pacific Railway has let a contract, $200,000, for new team tracks and freight sheds in Windsor, Ontario. The successful contractor is The Hayman Construction Co., London, Ontario.

The contract has been awarded by the City of Victoria, B. C., to the Canadian Bridge Company for the completion of the Johnson St. Bridge, $213,500.00.

The Town Council of Port Credit, Ontario, will shortly call for tenders on a new waterworks system, estimated cost $110,000.

The Provincial Highway Department, Halifax, N. S., has awarded road contracts to the following: Fulton Bros., Merigomish, N. S.; Wm. Cooke, N. Sydney, N. S.; Nova Scotia Road Builders Co., Kentville, N. S.; Kennedy & McDonald; also contracts to C. A. Mitchell, Angus R. McDonald, T. J. Sears, and T. J. Boner.

The Standard Paving Co., Ottawa, Ontario, has secured a general contract for paving at St. Thomas, Ontario. Contract prices for asphalt surface $1.98½ per sq. yd. excavation and concrete base $1.49 per sq. yd. At the same time contract was awarded Wm. Irwin & Son at the following prices: Concrete sidewalks 22c per sq. ft.; concrete gutter 60c per sq. ft.; and curb and gutter 78c per sq. ft.

The Canada Crushed Stone Co., Ltd., Dundas, Ontario, suffered a loss by fire at their Dundas Plant. It is said that the loss will total $340,000.

Queenstown Quarries, Ltd., have their crushing plant reinstated after almost entire loss by fire two months ago.

The Castellani Construction Co., Limited, of Toronto, have started work on their sub-contract from Tomlinson, McCaw & McDonald. This work involves 80,000 yards of earth, 25,000 yards of rock excavation, 81,000 yards of fill, and 15,000 square yards of rip rap.

Western News

William P. Hinton, formerly vice-president of the Grand Trunk Pacific Railway, who was superannuated after thirty-five years' service on March 1 last, has been appointed vice-president and general manager of the Cadbman Coal Properties in the Rocky Mountain District, south of Edson.

Provincial Department of Public Works, Victoria, B. C., will shortly call for tenders on four or five classes of work in connection with the paving of about three miles of the Pacific Highway, including concrete, Tarvia, macadam and bitulithic. Minister, Hon. W. H. Sutherland.

Mr. Comeron, Vancouver Island representative of the C. N. R., has been instructed to submit a report to Ottawa on the proposed 10-mile extension of the Island Railway, to connect the line with the James Logging Co., on Cowichan Lake. Premier Oliver is urging an early start on the work.

Extension of the Island Highway, from Forbes Landing, near Victoria, B. C., was urged upon the Provincial Executive Council by a delegation from Sayward District. The matter will be considered by the Department of Public Works. Estimated cost of the 40-mile extension, $250,000.

P. B. Mottley, bridge engineer for the Canadian Pacific Railway western lines, has gone to Montreal to submit final details on the plans for the proposed new C. P. R. pier to be erected at Coal Harbor, B. C. It is expected that tenders will shortly be called.

William H. Armstrong, for many years a prominent British Columbia contractor, died in Vancouver on April 2 after a brief illness. He was born in Stratford, Ontario, 65 years ago. During the war the late Mr. Armstrong acted as controller for the Dominion Government of the coal mines in Alberta and Eastern British Columbia.

At an expenditure of approximately $200,000, the Canadian Pacific Railway Co. has taken steps to immediately replace the bridge across the Coquitlan River at Vancouver with a permanent steel and masonry structure. W. D. Grant, 739 Granville St., was the successful tenderer at $74,000 for the foundation piers and abutments, and the contract for the supply, fabrication and erection of the double-track, through-truss steel span was awarded to the Canadian Bridge Co., Ltd., of Walkerville, Ontario. This contract is said to be in excess of $100,000 for approximately 700 tons of steel plates and heavy girders required in the 200-ft. span.

Provincial Department of Highways proposes to undertake the following work this year: Paving of Pacific Highway, from Johnson Road to Serpentine Flats, B. C., 3 miles, and paving in Chilliwack, where tar-macadam at a cost of $14,000 a mile may be used. Following work is contemplated: 34 miles of Hixen Creek-Quesnel Road to be improved; Cariboo Road south of Quesnel to be gravelled, $17,000; Burns Lake-Francois Lake Road, to be improved and completed; improvements to Coalmont-Granite Creek Road; Chase-Squilax Highway; Edgewood-Vernon Road, and Wassa-Canal Flats Road in Columbia Valley.

The Canadian Pacific will continue the construction of the Edmonton, Dunvegan and British Columbia during

the coming summer according to Charles Murphy, general manager of the Western lines. This line has been constructed thus far to Spirit Lake River, about 50 miles east of the Alberta, B. C., boundary line. The Canadian Pacific is working on an extension of its line from Kipawa to Les Quinze at the further end of Lake Temiskaming, 800 men being at present employed on the work. This company has a location party in the field running surveys northwest from Tuffnell, Saskatchewan, to Wadena and north from Wadena to the North Saskatchewan River in contemplation of completing a line started 15 years ago.

Foreign

Honduras, Central America

John Yasich writes us that he, Vincent Hays and George Conrad are pulling the levers on a Class-14 Bucyrus dragline, building a railroad dump for the List & Gifford Construction Company at La Ceiba, Spanish Honduras, Central America. Eric Landin, Chesterfield Blackmire and George Ringdahl are making fog.

Mexico

The Mexican Railway Company (British owned) has begun surveys for a 260-mile extension of line to connect Mexico City and Tampico. This project will cost in the neighborhood of $10,000,000, and when completed will reduce traveling time of 36 to 48 hours between the two cities to about 12 hours. According to Elmer R. Jones, president of the Wells-Fargo Express Company of Mexico, the intention is to commence actual construction before the end of the year. For construction purposes a separate corporation known as the Paducah-Tampico Railway Co., Ltd., has been organized with B. E. Holloway, general manager of the Mexican railways, as president. The new line, it is said, will pass through a territory rich in resources but wholly undeveloped. With favorable working conditions, it is estimated that the line can be completed within two years after actual construction has begun.

TRADE NOTES

Reports from various parts of the country show that "Dumorite," the new explosive recently put on the market, is effecting reductions in blasting costs amounting to one-third and more. Statements from users show this is especially true in quarry, farm blasting and other open work, because the new dynamite frequently shoots stick for stick with regular forty percent dynamite, while at the same time each case contains at least one-third more cartridges.

These reports follow out the statements made concerning the explosive at the time it was perfected. The Du Pont Company then announced that "Dumorite" was manufactured on a double base of modified nitroglycerin and guncotton, that it could not freeze and would not produce headache. This last advantage, combined with the saving in blasting costs, is causing it to be regarded as the most advantageous explosive on the market at this time.

It has been announced that a contract has been awarded to Dwight P. Robinson & Co., New York, for the construction of a building to accommodate American commercial exhibits at the Brazilian Centennial Exposition to be held in Rio de Janeiro beginning September 7th. The building, which will be the "unofficial" exhibit building, will be constructed of American materials as far as possible. It will be purely a commercial proposition, having no direct connection with the exhibition plans of the American Government under the appropriation of $1,000,000 made by Congress recently.

Mr. W. E. Mathews has joined the Sales Organization of the Lima Locomotive Works, Incorporated. Mr. Mathews will devote his entire time to the sale of Shay Geared Locomotives. He is well known to the trade and is thoroughly familiar with the geared locomotive.

Frederick J. Parker, formerly Secretary of the Arthur McMullen Company, announces the severance of that connection, and the formation of the general contracting organizations of the Parker-Sawyer Co., Railroad and General Construction, and of the Engineering Construction Corporation, Highway Contractors, with offices at 720 Commercial Trust Building, Philadelphia.

Winter Steam Shovel Operation in a Northern Russia Coal Mine at Extremely Low Temperatures

(Continued from page 170)

about 2 miles. The exposure is very severe. Hand methods of unloading will soon be changed by installing dump cars, which are under construction. An unloading plow will be used if the dump cars are not ready promptly.

Deductions

The following deductions are possible:

1. It is feasible to work in winter with steam shovels and draglines with certain preparations such as the following:

   a. Complete preparatory cuts before the frost, so that operations may be carried on in the cut.

   b. No delay in supplying water. Water tank should be in heated cars.

   c. Insulation of steam pipes, cylinders, etc.

   d. Interior of excavator should be well protected from cold from sides and below. The latter by canvas.

   e. Warm clothing supplied to the men.

   f. A carefully selected stock of repair parts should be kept on hand. These should be of some special steel with which shovels are built.

2. Break up the top crust of ground by blasting, especially for draglines.

3. Continuous operations so as to prevent the freezing of the bank during stops.

4. The lighting problem should be carefully worked out.

5. Erect snow sheds around cuts.

6. The steam shovel crews should be reinforced by an extra engineer and pitman who suffer the most from the cold.

7. Mechanical unloading of cars more necessary for winter work than for summer operations.

Recruiting Officer (to applicant for the Navy, stripped for close inspection): "Have you any scars (pronounced skyars) on you."

Applicant: "No Sir! But I have got some cigarettes over there in my coat!"

Will not freeze in any weather

DUMORITE — the new Du Pont dynamite which gives you over ⅓ more work for your dollar — is *non-freezing*.

By rigorous laboratory tests and extensive field operations we find that Dumorite can be shot successfully at any temperature. It is just as good in below-zero weather as in the summer time.

Stick for stick, Dumorite does approximately the same work as 40% dynamite, but you can buy 135 to 140 sticks of Dumorite at the same price as 100 sticks of "40%." And Dumorite is a guncotton-nitroglycerin dynamite that will not cause headache.

Dumorite is being used successfully in most kinds of explosive operations. Write our nearest branch office giving details of your particular work and let our Service Department solve the problem of fitting Dumorite to your job. Let Dumorite reduce your explosives bills for 1922.

E. I. du Pont de Nemours & Co., Inc.

Explosives Department

Wilmington, Delaware

BRANCH OFFICES:

Birmingham, Ala.	Denver, Colo.	New York, N. Y.	San Francisco, Calif.
Boston, Mass.	Duluth, Minn.	Pittsburgh, Pa.	Scranton, Pa.
Buffalo, N. Y.	Huntington, W. Va.	Portland, Ore.	Seattle, Wash.
Chicago, Ill.	Kansas City, Mo.	St. Louis, Mo.	Spokane, Wash.
		Springfield, Ill.	

Du Pont Products Exhibit
Atlantic City, N. J.

NON-HEADACHE DU PONT NON-FREEZING

DUMORITE

For convenience in making inquiry use postal inserted in this number.

Not for Men

The minister was trying to teach the significance of white to a Sunday school class.

"Why," said he, "does a bride invariably desire to be clothed in white at her marriage?"

As no one answered, he explained.

"White," he said, "stands for joy, and the wedding day is the most joyous occasion of a woman's life."

A small boy queried:

"Why do the men wear black?"—*Exchange.*

In actual dollars and cents the amount of road and street work contracted for during the first third of 1922 was 13% greater than 1920 and 28% greater than 1921. This should portend great things for the forthcoming summer.

FOR SALE

Vulcan shovel, shop No. 1097, in good condition and shows very little wear. Has handled only 25,000 cubic yards. 2½-yard dipper. Equipped with a new 65 H. P. Scotch Marine Boiler. Stored near Dayton, Ohio. For full information address P. O. Box X, The Excavating Engineer, South Milwaukee, Wis.

Meeting Place of Capital and Labor

THE

KOENIG LABOR AGENCIES

Established 1875

ST. LOUIS
612 Walnut Street
Main or Central 2766

KANSAS CITY
501 Delaware St.
Main 0796

Help of All Kinds Furnished Free

Specializing in BOILERS FOR CONTRACTORS' EQUIPMENT

Established in 1864

Built to Meet Requirements of A. S. M. E. Code, All States, Canadian Provinces and Foreign Governments

For convenience in making inquiry use postal inserted in this number.

Don't Handicap Your Shovel

NO matter how good a steamshovel you have, it can not dig any faster than you can haul the material away. If you have a large shovel, every minute your shovel is idle, waiting for your dump train, *costs you at least one dollar* in lost production.

The answer is *Western* dump cars. You know and every experienced steamshovel owner knows that there are no better dump cars made than Westerns. They are better built than ordinary dump cars and of better material. They are scientifically designed, dump fast and clean, and get back to the shovel. Western air dump cars have a third more dumping power than cars of any other make — that means greater dumping speed and dumping efficiency. They stick on the track better. They are more dependable. They keep out of the repair shop longer. They will *outwork* and *outlast* ordinary makes of dump cars.

Then, why experiment, especially during these days of "cheap dirt?" Why run any risk? Why try out any dump car or grading tool, the highest recommendation for which that possibly can be given, is that "it is just as good as a Western," when you can just as well back up your shovel with the standard itself — with *Western Dump Cars?*

Let us hear from you. Our catalog No. E-51 should be on your desk. Send for it.

On the Iron Range, where earth moving has been reduced to a science, they prefer WESTERN Dump Cars.

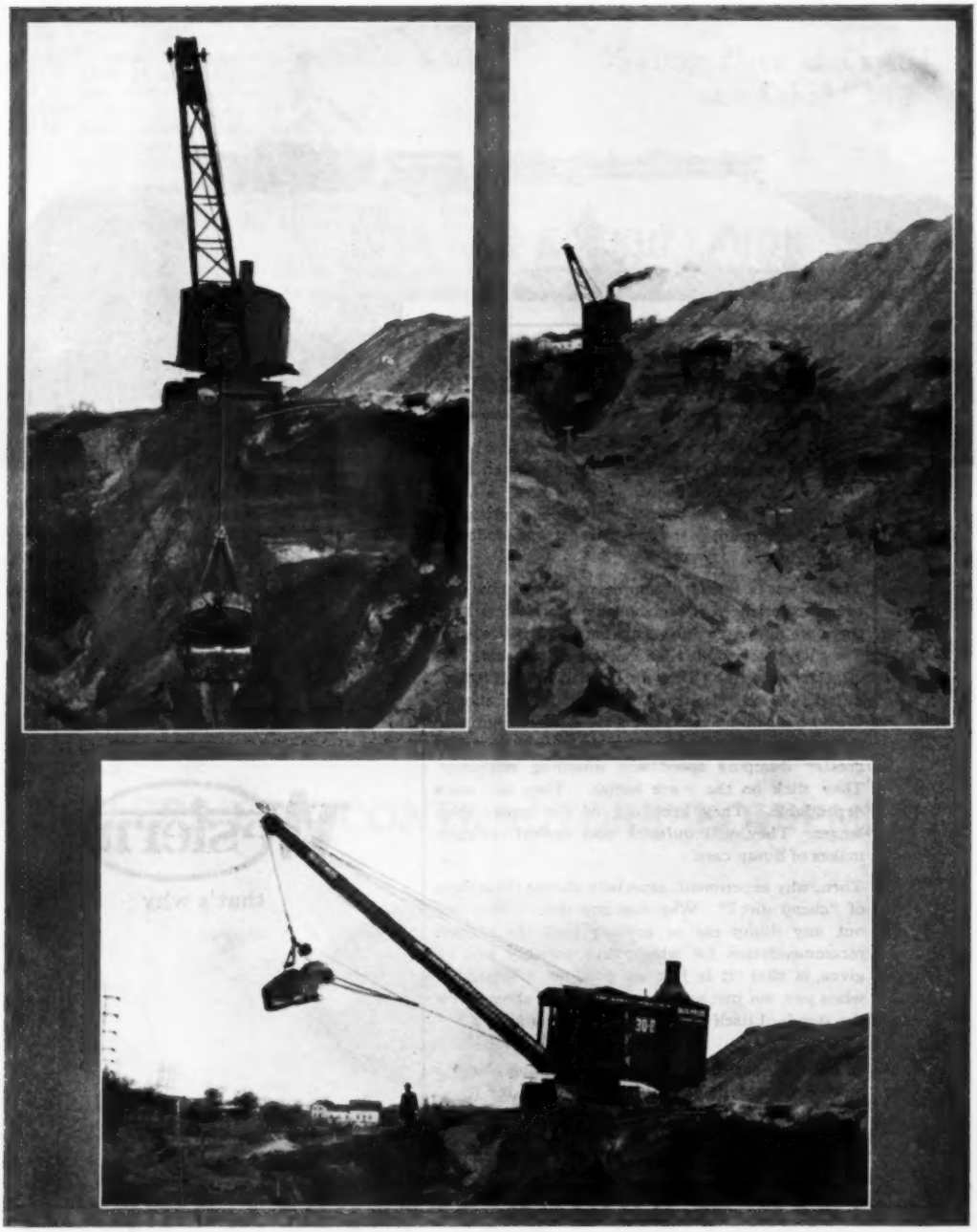
Western

that's why

Western Wheeled Scraper Company

Earth and Stone Handling Equipment

Aurora, Illinois



Work under way on the Bryn Mawr Siphon for the Board of Water Supply of the City of New York, near Tuckahoe, New York. A 30-B Bucyrus dragline excavator digging a 20-foot trench for the new pipe. Thomas Crimmins Contracting Company, Contractors.